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RESTRICTION AND PREVENTION

OF

DIPHTHERIA

DOCUMENT ISSUED BY THE MICHIGAN STATE BOARD OF HEALTH

[76.1]

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Diphtheria is a Contagious Disease, hence the strict observance of the following precautions is of very great importance:

1. When a child or a young person has a sore throat, bad odor to its breath, and especially if it has fever, it should immediately be kept separated from all other persons, except necessary attendants, until it be ascertained whether or not it has diphtheria or some other communicable disease.

2. Every person known to be sick with diphtheria should be promptly and effectually isolated from the public; no more persons than are actually necessary should have charge of or visit the patient, and they should be restricted in their intercourse with other persons.

3. Plain and distinct notices should be placed upon the premises or house in which there is a person sick with diphtheria, and no child should be allowed to enter.

4. Householders and physicians must immediately give notice of the first case and of every case of diphtheria, to the health officer or to the president or clerk of the board of health. This is required by sections 1734 and 1735, Compiled Laws of Michigan, 1871, as amended by Act No. 11, Laws of 1883, which with the new section (50) added in 1883, are as follows:—

(1734) SEC. 43. Whenever any **householder, hotel keeper, keeper of a boarding house, or tenant** shall know, or shall be informed by a physician, or shall have reason to believe, that any person in his family, hotel, boarding house, or premises is taken sick with smallpox, cholera, diphtheria, scarlet fever, or any other disease dangerous to the public health, he shall immediately give notice thereof to the health officer, the president or the clerk of the board of health of the township, city, or village in which he resides. Said notice shall state the name of the person sick, the name of the disease, the name of the householder, hotel keeper, keeper of boarding house, or tenant giving the notice, and shall, by street and number, or otherwise, sufficiently designate the house in which he resides or the room in which the sick person may be; and if he shall refuse or neglect immediately to give such notice he shall forfeit for each such offense a sum not exceeding one hundred dollars*: *Provided*, That this penalty shall not be enforced if a physician in attendance has given to the health officer or other officer hereinbefore mentioned an immediate notice of said sick person, and true name of the disease, in accordance with the requirements of this section.

* **Supervisors** must prosecute for all such forfeitures; township officers must give notice to supervisor; prosecuting attorney to conduct suit if requested; see sections 6852, 6853, and 6855, Compiled Laws of Michigan, 1871. **Health officers of villages and cities** must notify prosecuting attorney of all violations of this section,—see Act No. 157, Laws of 1879; the **prosecuting attorney** must prosecute for all such forfeitures incurred within his county,—see section 6855, Compiled Laws of 1871.

(1735.) SEC. 44. Whenever any **physician** shall know that any person whom he is called to visit, or who is brought to him for examination, is infected with small-pox, cholera, diphtheria, scarlet fever, or any other disease dangerous to the public health, he shall immediately give notice thereof to the health officer, the president, or the clerk of the board of health of the township, city, or village in which the sick person may be; and to the householder, hotel keeper, keeper of boarding house, or tenant within whose house or rooms the sick person may be. The notice to the officer of the board of health shall state the name of the disease, the name, age, and sex of the person sick, also the name of the physician giving the notice; and shall, by street and number, or otherwise, sufficiently designate the house or room in which said sick person may be. And every physician and person acting as a physician, who shall refuse or neglect immediately to give such notice shall forfeit for each such offense a sum not less than fifty nor more than one hundred dollars*: *Provided*, That this penalty shall not be enforced against a physician if another physician in attendance has given to the health officer, or other officer hereinbefore mentioned, an immediate notice of said sick person, and the true name of the disease, in accordance with the requirements of this section.

SEC. 50. For each complete notice in writing to an officer of the board of health, in full compliance with the preceding section, requiring from physicians or other persons notices of diseases dangerous to the public health, the physician who gave the notice shall be entitled, on duly certifying that each notice was correct, and when the bill has been duly audited by the board of health, to receive from the township, city, or village, in which the notice was given, the sum of ten cents.

5. Upon receipt of such notice, the board of health has duties to perform in taking measures to restrict the spread of the disease, which it is a great violation of public trust for it to neglect or postpone. That no time may be lost, it is the duty of every board of health to make provision for prompt action by its health officer, authorizing and directing him to be prepared at all times, as executive officer of the board, to take certain action without waiting for a meeting of the board, whenever a case of diphtheria, scarlet fever, small-pox, or other disease dangerous to the public health occurs within its jurisdiction. The duties of the local board of health relative to the restriction and prevention of diseases, are treated in circular 64 from the State board of health, which was also printed on pages 67-78 of the Report of the State board of health for 1883. Some of the duties of the health officer may be briefly suggested as follows: He should, on receipt of a notice of a case of diphtheria,—

- a. Promptly investigate the subject.
- b. Order prompt and thorough isolation of those sick or infected with diphtheria.
- c. See that no person suffers for lack of nurses or supplies.
- d. Give public notice of infected places by placard on the premises, and otherwise if necessary.
- e. Notify teachers or superintendents of schools concerning families in which there are cases of diphtheria.
- f. Supervise funerals of persons dead from diphtheria.
- g. Disinfect rooms, clothing, and premises, and all articles likely to be infected, before allowing them to be used by other persons than those in isolation.
- h. Keep the president of his board of health and the secretary of the State board of health constantly informed respecting every outbreak of diphtheria.

These duties are required by Act 137, Laws of 1883. In the absence of regulations made by the local board of health, conflicting therewith, orders by the health officer in the lawful performance of these duties have the force of regulations by the board of health. These duties are required also in case of scarlet fever or small-pox. The health officer should also, in due time, give certificates of recovery and of freedom from liability to give diphtheria.

* See footnote at bottom of first page.

Three sections of the law relating to duties of boards of health are as follows (numbers in parenthesis before sections referring to Compiled Laws of 1871; those at the end, to Howell's Annotated Statutes):

Notice of infected places.

(1732.) SEC. 41. When the small-pox, or any other disease dangerous to the public health, is found to exist in any township, the board of health shall use all possible care to prevent the spreading of the infection, and to give public notice of infected places to travelers, by such means as in their judgment shall be most effectual for the common safety.—(\$1673 Howell's Annotated Statutes.)

Board to make provision to prevent spread of diseases.

(1706.) SEC. 15. When any person coming from abroad or residing in any township within this State, shall be infected, or shall lately before have been infected, with the small-pox, or other sickness dangerous to the public health, the board of health of the township where such person may be shall make effectual provision in the manner in which they shall judge best for the safety of the inhabitants, by removing such sick or infected person to a separate house, if it can be done without danger to his health, and by providing nurses and other assistance and necessaries, which shall be at the charge of the person himself, his parents, or other person who may be liable for his support, if able; otherwise, at the charge of the county to which he belongs.—(\$1647 Howell's Annotated Statutes.)

At expense of person or county.
3 Mich. Rep. 475.

(1707.) SEC. 16. If any such infected person cannot be removed without danger to his health, the board of health shall make provision for him as directed in the preceding section, in the house in which he may be, and in such case they may cause the persons in the neighborhood to be removed, and may take such other measures as they may deem necessary for the safety of the inhabitants.—(\$1648 Howell's Annotated Statutes.)

Provision in case infected persons cannot be removed.

(1707.) SEC. 16. If any such infected person cannot be removed without danger to his health, the board of health shall make provision for him as directed in the preceding section, in the house in which he may be, and in such case they may cause the persons in the neighborhood to be removed, and may take such other measures as they may deem necessary for the safety of the inhabitants.—(\$1648 Howell's Annotated Statutes.)

6. The room into which one sick with diphtheria is placed should previously be cleared of all needless clothing, carpets, drapery, and other materials likely to harbor the poison of the disease. This room should constantly receive a liberal supply of fresh air, without currents or drafts directly upon the patient. It will be well also to have the sun shine directly into the room.

7. The discharges from the throat, nose, and mouth are extremely liable to communicate the disease, and should be received in vessels containing a strong solution of copperas (sulphate of iron), or on soft rags or pieces of cloth, which should immediately be burned.

8. The discharges from the kidneys and bowels are also dangerous, and should be passed into vessels containing a strong solution of sulphate of iron (copperas), and then be buried at least 100 feet distant from any well; or when this is impracticable they should be passed on old cloths, which should immediately be burned.

Sulphate of iron (copperas) dissolved in water in the proportion of one and a half pounds of the sulphate to one gallon of water, is a good solution for chamber-vessels, water-closets, etc. When much is wanted it may be prepared by hanging a basket containing about sixty pounds of copperas in a barrel of water.

9. The clothing, towels, bed-linen, etc., on removal from the patient should at once before removal from the room, be placed in a pail or tub of boiling-hot zinc-solution, made in proportion as follows: water, one gallon; sulphate of zinc, four ounces; common salt, two ounces.

10. Nurses and attendants should be required to keep themselves and their patient as clean as possible; their own hands should frequently be washed and disinfected by chlorinated soda.

11. All persons recovering from diphtheria should be considered dangerous; therefore such a person should not be permitted to associate with others, or to attend school, church, or any public assembly until the throat and any sores which may have been on the lips or nose are healed, nor

until in the judgment of a careful and intelligent health officer he can do so without endangering others; nor until after all his clothing has been thoroughly disinfected, and this without regard to the time which has elapsed since recovery if the time is less than one year. Nor should a person from premises in which there is or has been a case of diphtheria attend any school, Sunday-school, church, or public assembly, or be permitted by the health authorities or by the school board to do so, until after disinfection of such premises and of the clothing worn by such person if it shall have been exposed to the contagion of the disease.

12. The body of a person who has died of diphtheria should be washed with a zinc solution of double the strength stated in paragraph 9, then wrapped in a sheet wet with the zinc solution, and at once be buried. In no case should the body be exposed to view.

13. No public funeral should be held at a house in which there is a case of diphtheria, nor in which a death from diphtheria has recently occurred. Except under extraordinary precautions there should be no public funeral of a person who has died from diphtheria. No child should attend, and it would be better in most cases that few adults should attend, a funeral of a person dead of diphtheria.

DISINFECTION OF ROOMS, CLOTHING, ETC.

14. After a death or recovery from diphtheria, the room in which there has been a case of diphtheria, whether fatal or not, should, with all its contents, be thoroughly disinfected by exposure for several hours to strong fumes of burning sulphur, and then, if possible, it should for several hours or days be exposed to currents of fresh air.

a. Because of the innumerable ways in which the contagion may be scattered about the house and premises where there has been a case of diphtheria, the entire house and out-buildings, including cellar, garret, wood-shed, and privy, will usually need to be disinfected.

b. Rooms to be disinfected must be vacated. Heavy clothing, blankets, bedding, and other articles which cannot be treated with the zinc solution, should be spread out so as to be thoroughly exposed during fumigation, which should take place in the room where the clothing, etc., has been used in connection with the patient. For a room about ten feet square, at least two pounds of sulphur should be used; for larger rooms, proportionately increased quantities, at the rate of two pounds for each 1,000 cubic feet of air-space.

c. Close all openings to the room, place the sulphur in an iron pan supported upon bricks, set it on fire by hot coals or with the aid of a spoonful of alcohol lighted by a match, be careful not to breathe the fumes of the burning sulphur, and when certain the sulphur is burning well, leave the room, close the door, and allow the room to be closed for several hours.

d. Care should be taken to secure the complete burning of as much of the sulphur as is possible. For this purpose the iron pan or pot in which the sulphur is to be placed may previously be heated, and may be placed in the room over hot coals in a pan of ashes set up on bricks.

e. Cellars, yards, stables, gutters, privies, cesspools, water-closets, drains, sewers, etc., should be frequently and liberally treated with copperas solution, made as described in paragraph 8.

f. Body and bed clothing, etc.—It is best to burn all articles which have been in contact with persons sick with contagious or infectious diseases. Articles to be burned should be thoroughly and quickly burned, so as not to diffuse the poison. In the glowing furnace under a large engine-boiler is a good place. If the burning is done in the open air it should be far from dwellings and by a quick strong fire. Articles too valuable to be destroyed should be exposed for one hour to a dry heat of from 240° F. to 250° F., or be treated as follows:

g. Cotton, linen, flannels, blankets, etc., should be treated with the boiling-hot zinc-solution, introducing them piece by piece, securing thorough wetting and boiling for at least half an hour. Heavy woolen clothing, silks, furs, stuffed bedcovers, beds, and other articles which cannot be treated with the zinc solution, should be hung in the room during fumigation, pockets being turned inside-out and the whole garment being thoroughly exposed. Afterward they should be hung in the open air, beaten, and shaken. Carpets are best fumigated on the floor, but should afterward be removed to the open air and thoroughly beaten. Pillows, beds, stuffed mattresses, upholstered furniture, etc., after being disinfected on the outside, may be cut open and their contents again exposed to fumes of burning sulphur. In no case should the thorough disinfection of clothing, bedding, etc., be omitted. Infected clothing and bedding have been known to communicate diphtheria months after their infection.

The foregoing methods of disinfection are applicable in other contagious diseases.

TEMPORARY SHELTER DURING DISINFECTION.

15. Disinfection of a room always necessitates vacating it, and sometimes makes it impossible to remain in adjoining rooms, therefore in some cases it seems essential to have hospital, tent, or other temporary shelter for the inmates of infected houses, where bathing, disinfection, and washing can be done while such houses are being disinfected and put in order. On this subject local boards of health should be consulted, and should be prepared to act.

HOW TO AVOID AND PREVENT DIPHTHERIA.

16. Avoid the special contagium of the disease. This is especially important to be observed by children and all whose throats are sore from any cause. Children under ten years of age are in much greater danger of death from diphtheria than are adults; but adult persons often get and spread the disease, and sometimes die from it. Mild cases in adults may cause fatal cases among children. Because of these facts it is frequently dangerous for children to go where adult persons go with almost perfect safety to themselves.

17. Do not let a child go near a case of diphtheria. Do not permit any person or thing, or a dog, cat, or other animal to come direct from a case of diphtheria to a child. Unless your services are needed, keep away from the disease yourself. If you do visit a case, bathe yourself and change and disinfect your clothing before you go where there is a child.

18. It is probable that the contagium of diphtheria may retain its virulence for some time, and be carried a long distance in various substances and articles in which it may have found lodgment. Diphtheria contracted from germs carried several blocks in a sewer may perhaps be as fatal as when contracted by direct exposure to one sick with it. While it is not definitely proved that the germs of diphtheria are propagated in any sub-

stance outside the living human or animal body, it is possible that they may be found to be thus propagated. Therefore, and because the breathing of air laden with emanations from decaying fruit, vegetables, or meat, or from sewers, cess-pools, sinks, and other receptacles of filth, is believed to endanger health, great care should be taken to have the house, premises, and everything connected with dwellings kept clean and dry; to have sewer-connections well trapped, and house-drains constantly well ventilated; and to have all carriers of filth well disinfected. Do not permit a child to enter a privy, water-closet, or breathe the air from a privy, water-closet, cess-pool or sewer into which discharges from persons sick with diphtheria have entered, nor to drink water or milk which has been exposed to such air.

19. Do not permit a child to ride in a hack or other closed carriage in which has been a person sick with diphtheria, except the carriage has since been thoroughly disinfected with fumes of burning sulphur, as specified in paragraphs 14, 14 b, 14 c, and 14 d.

20. All influences which cause sore throats probably tend to promote the taking and spreading of this disease. Among the conditions external to the body liable to spread diphtheria, perhaps the most common are: infected air, infected water, and *contact with infected substances or persons*. Because of this, and as a means of lessening the danger of contracting other diseases, the following precautions should always be taken, but more particularly during the prevalence of any such disease as diphtheria.

21. Avoid exposure to wind and to breathing cold, dry air; also the use of strong vinegar or any other article of food which tends to make the throat raw or tender.

22. Do not wear or handle clothing worn by a person during sickness or convalescence from diphtheria.

23. Beware of any person who has a sore throat. Do not kiss, or take the breath of such a person. Do not drink from the same cup, blow the same whistle, or put his pencil or pen in your mouth.

24. Beware of crowded assemblies in unventilated rooms.

25. Do not drink water which has a bad taste or odor, or which comes from a source that renders it liable to be impure, especially if there is reason to believe it may contain something derived from a person sick with diphtheria.

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The State board of health recommends that local boards of health procure and distribute copies of this document within their jurisdictions, especially when diphtheria is near, and certainly to the neighbors of families in which diphtheria is present. In order to facilitate such action, the State board of health has had the document stereotyped, and the plates placed in the hands of W. S. George & Co., Lansing, Michigan, who will supply any number of copies in the English, German, or Holland language, on good book paper, at rates as follows (cash to accompany order):

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In order that the document may do the greatest possible good, it is hoped that each one who receives it will not only make such use of it as will tend to disseminate most widely the suggestions and statements of fact contained therein, but will also act for the restriction or prevention of this disease in accordance with its suggestions, or by other effective measures.